



NHI WCT Standards

U.S. Department of Transportation  
**Federal Highway Administration**



# National Highway Institute Web-conference Training

## Standards Guide

**2016**

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## 1. Introduction

The National Highway Institute (NHI) *Web-conference Training Standards Guide* provides the standards for development of an Web-conference Training (WCT) for the National Highway Institute. It has been designed to ensure consistency and reliability across WCT courses. Developers must follow the guidance outlined in this document, while keeping in mind that contractual requirements take priority. If there is any uncertainty when developing a course, the Contracting Officer Representative (COR) should be consulted.

## 2. General WCT Development Standards

### 2.1 Course Structure

A WCT course may be segmented in one of two formats: lesson only, or modules with associated lessons. Use the most appropriate structure for logical sequencing of course content.

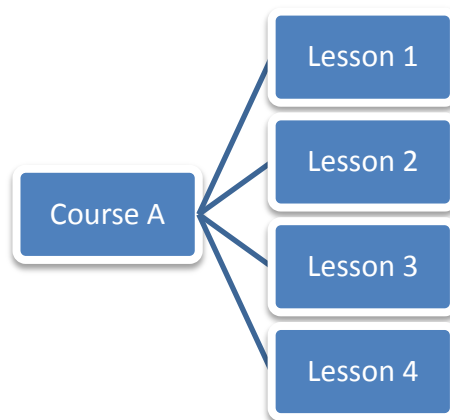


Figure 1: Course Structure with Lessons Only

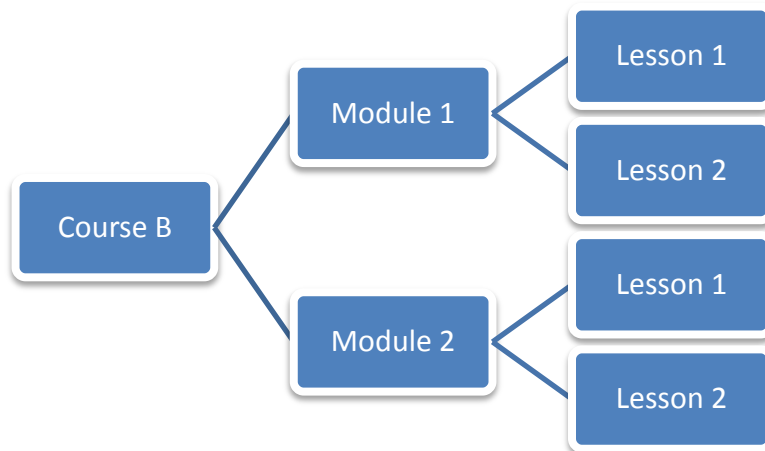


Figure 2: Course Structure with Modules and Lessons

## 2.2 Platform Standards

Because NHI does not have control over consumers' training platforms, the following standards were developed internally and represent the baseline for online courseware. All courseware must be designed for use on the minimum platform configurations.

## 2.3 Hardware

Make sure to use the minimum hardware configurations during development that will be provided by NHI either in the task order or in initial planning phases.

## 2.4 Browser Specification

Design courseware for optimal viewing using the standard FHWA configuration browser. If you are unaware of what the standard is, please check with NHI prior to development.

## 2.5 Hosting

All NHI WCT courseware resides on the FHWA server at <http://connectdot.connectsolutions.com>.

## 2.6 WCT Development Tools

All WCT developed for NHI **must** use Adobe Connect. Developers must obtain a user ID and password from NHI. This enables them to log in to the Adobe Connect Virtual Classroom. Developers and facilitators need to be registered as Hosts in order to format the virtual classroom. Developers should contact the NHI Instructional Systems Designer (ISD) to facilitate completion of these tasks.

Be sure that all developed products use a template approved by the COR. NHI has some sample templates available in the NHI WCT Developer Toolkit ([http://www.nhi.fhwa.dot.gov/resources/intro\\_developing.aspx](http://www.nhi.fhwa.dot.gov/resources/intro_developing.aspx)).

Other non-proprietary development tools may be used in conjunction with Adobe Connect. These tools may include:

- Adobe Flash (version 10.1 or later)
- JavaScript
- Adobe Photoshop
- Adobe Premiere
- Adobe Captivate
- Adobe Acrobat
- Adobe Presenter

Any other development tools require approval from the COR.



### **Developer Note on Supplemental Training Materials**

If a WCT includes an end-of-course assessment, that instrument must be provided as a Web-based training product that is compatible with the Adobe Connect server (e.g., Adobe Presenter or Adobe Captivate).

Likewise, if a Web-based independent study module is required for the course, that training product must be compatible with the Adobe Connect server.

Refer to the NHI Web-based Training Standards Guide for development standards specific to those products.

## **3. Standards for Design Plans**

Design plans contain the findings and recommendations that are usually the result of a needs analysis. Design plans ensure the course is instructionally sound, which means it is job-relevant, task-based, problem-centered, interactive, engaging, and well-organized. Refer to the Design Plan template on NHI's website for more information.



### **Design Plan Note**






Following delivery of the DP, the COR may request a demonstration of a particular exercise to determine how certain interactivities are facilitated within the context of the virtual classroom.








## 4. Standards for the Adobe Connect Virtual Classroom

The virtual classroom is the location from which the WCT is hosted. The virtual classroom holds all of the files, layouts, and pods needed to facilitate the WCT.

NHI provides the URL for the classroom to the contractor. The contractor then uses this URL to access and design the virtual classroom.

The Adobe Connect virtual classroom comes equipped with various features to support an interactive online learning environment. Those features should be utilized as described in the design plan. Some typical uses of each of the features are listed below. The icons on the following pages should be inserted in the Facilitator Guide (FG) and on the slides as a cue to the facilitator, host, and participants.

Icon	Pod	Typical Use
	Camera and Voice	<ul style="list-style-type: none"> <li>• Display photo or video image of presenter</li> </ul>
	Attendee Pod	<ul style="list-style-type: none"> <li>• Check for understanding or agreement</li> <li>• Survey participants</li> <li>• Solicit feedback on facilitation of meeting</li> </ul>
	Chat Pod	<ul style="list-style-type: none"> <li>• Ask and answer open-ended questions</li> <li>• Post hyperlinks to Web sites</li> <li>• Provide further information to select attendees</li> <li>• Encourage attendees to share ideas with each other</li> <li>• Email contents of the pod</li> </ul>
	Note Pod	<ul style="list-style-type: none"> <li>• Capture discussion points</li> <li>• Provide a way for small groups to document their results</li> </ul>
	Share Pod	<ul style="list-style-type: none"> <li>• Demonstrate software</li> <li>• Share a view of your files</li> <li>• Allow another attendee to view your screen (use screen shares sparingly and in full screen mode to allow participants to easily view the material)</li> <li>• Collaborate on a document</li> <li>• Navigate through a Web site</li> </ul>

Icon	Pod	Typical Use
	Whiteboard Tool	<ul style="list-style-type: none"> <li>Edit illustrations, such as diagrams, charts, documents, maps, photographs</li> <li>Record participant responses</li> <li>Create visual examples</li> </ul>
	Poll Pod	<ul style="list-style-type: none"> <li>Ask multiple choice questions with one or more correct answers</li> <li>Gather opinions (i.e., conduct a survey)</li> <li>Prioritize a list of text items</li> </ul>
	Web Share Pod	<ul style="list-style-type: none"> <li>Share new content or resources</li> <li>Instruct participants to search for information</li> </ul> <p><i>*Note: If someone with Host rights browses to a Web link, this will open the URL for all participants.</i></p>
	File Share Pod	<ul style="list-style-type: none"> <li>Share documents in formats that cannot be displayed in Share pod, e.g., Word, .pdf, Excel, or zip.</li> </ul>
	Phone	<ul style="list-style-type: none"> <li>Facilitate introductions</li> <li>Ask and answer verbal question</li> <li>Explain new ideas, concepts, methods</li> <li>Encourage participants to answer each other's questions</li> </ul>
	Demo (via Share Pod)	<ul style="list-style-type: none"> <li>Demonstrate a software application</li> <li>Show the process for a task</li> </ul>
	Breakout Rooms	<ul style="list-style-type: none"> <li>Assign small group activities</li> <li>Create a customized workspace for each breakout group to differentiate assignments for each group</li> <li>Monitor breakout room discussions using Chat pod and providing feedback</li> </ul>

For additional information on the Adobe Connect features, see [www.connectusers.com/tutorials/](http://www.connectusers.com/tutorials/).

At a minimum, the virtual classroom includes:

- Audio information

- Attendee list pod
- Layouts for presenting course content
- Pods that contain course materials, such as the following:
  - PowerPoint presentation
  - Participant workbook (PW)
  - Discussion questions
  - Video
  - Group activity materials
  - External hyperlinks
  - Resource materials
- Pods that are used to communicate information during the course, such as the following:
  - Notes pod
  - Chat pod
  - Whiteboard overlay

## 5. Standards for Visual Aids

For each lesson, develop the most suitable type of visual aids to support and reinforce the material. Aids include such elements as PowerPoint presentations, computer graphics, photographs, video, animation, poll pods, and graphs or tables.

- Use the most modern technology available to generate visuals.
  - Be aware of contractual requirements that apply to development of a particular course.
  - Be aware that any computer software required for the visual aids must be readily available to any facilitator; do not use proprietary software.
  - Ensure compliance with accessibility standards.
- See *NHI Style and General Standards Guide*, “Style” section for guidance on PowerPoint expectations.
  - Ensure legibility and quality of all graphics and slides used in the FG and PW
- In the virtual classroom, use standard best practices, including using dark color and large font settings for text in Notes and Chat pods and when using the whiteboard overlay.
- Do not rely on color alone to convey information.
- Content provided via Share pods must be clearly readable in the virtual classroom.



- Include suggestions and instructions in the facilitator guide for generating Notes or Chat pod discussions that can be seen on the screen.
  - Notes or Chat pod comments can generate discussion, encourage participant interaction, and promote understanding of the material.
- Fully document in the facilitator guide any Adobe Connect features that are utilized. Include access information for any web pages used to conduct class.

## 5.1 WCT PowerPoint Template

The NHI WCT template is available in the WCT Developer Toolkit section of NHI's website at [http://www.nhi.fhwa.dot.gov/resources/intro\\_developing.aspx](http://www.nhi.fhwa.dot.gov/resources/intro_developing.aspx). It may be used for the development of PowerPoint slides for an interactive training. The developer may use a different template if approved by the COR.

## 5.2 Fonts

Use the following font sizes when using the WCT PowerPoint slide template. Remain consistent with font size and type throughout the presentation. NHI requires use of a sans serif font such as Arial or Verdana.

Content Type	Font Size
Headings on PowerPoint slides (course title, lesson title, screen title)	24-28 pt. bold
Text on PowerPoint slides	24-32 pt.

Use generally accepted standards for readability and accessibility when sizing text for other visual elements, such as pods, screen shots, or video.

## 6. Standards for a Facilitator Guide

The Facilitator Guide (FG) is based on the approved DP, and guides the facilitator during delivery of a course. The FG thoroughly describes the procedures for setting up and teaching the course. It helps a facilitator transition from one lesson to another by providing an appropriate segue into a topic, an introductory statement or a wrap-up statement. Also, it details the ways in which one topic builds upon or relates to another topic. This guidance should occur frequently throughout the material, wherever appropriate.

The FG provides the facilitator with visual cues for participant activities, script, possible questions to prompt discussion (along with answers to those questions) and time allotments for each lesson.



Supporting material may be incorporated into the FG or cross-referenced to related course materials. Describe case histories, workshop problems, computer exercises, and other instructional tools in complete detail.

At a minimum, the FG includes:

- Cover
- Table of contents
- Introduction
  - Course overview
  - Target audience description
  - Course goal
  - Course learning outcomes
  - FG overview
  - Course schedule
- Course administration
- Training course checklist
- Sample pre-event email to participants
- WCT facilitator icons
- Course content
  - Design plans
  - Layout, slide, or screen captures and content
  - Instructor script
  - Interactivities with answers
- List of abbreviations and acronyms
- Resources
  - Glossary
  - Bibliography
  - Web sites

Document complete and extensive facilitator guidance for each layout, screen share, or slide to ensure that every facilitator can teach the course as the developers and subject matter experts (SME) intended. Present the guidance in a consistent format throughout the guide. An example format is shown on the next page.

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Interaction	Slide and Instructions	Key Message
 <p>SHARE POD</p>	 <p><b>Engagement Activity(ies):</b></p> <p>Introduce yourself, your co-Facilitator <i>(if any)</i> and Host as appropriate.</p> <p><b>Host Notes:</b></p> <ul style="list-style-type: none"> <li>• <i>Open lobby layout 10 minutes prior to course start, then open the Presentation layout (which starts with this slide) when the course is scheduled to start.</i></li> <li>• <i>Approximately 10 and 5 minutes before the session start time announce yourself and let Participants know that you will begin at {time}.</i></li> </ul>	<p>Welcome to the Instructor Development Course (IDC) for Web Conference Training (WCT). My name is _____ and I'll be your Facilitator for this session.</p> <p>This first web conference session will last about 30 minutes.</p> <p>Please note that the Participant Workbook contains the slides from the course and other information. You may use your workbook to take notes during the course.</p> <p>If you had any trouble downloading the copy sent to you via email before the course, we will work with you at the end of this lesson to make sure you have a copy.</p> <p><i>(If anyone was unable to download, the Host will work with them separately to offer guidance on downloading at the end of the session.)</i></p> <p>Let's get started with this lesson.</p>

## 7. Standards for a Participant Workbook

The Participant Workbook (PW) is an instructional support tool. It serves multiple functions during a Web conference. The PW includes:

- Space for note taking.
- Enhanced or enlarged views of the visual aids that are used in the virtual classroom.
- Background information and directions for case studies, formulae for calculations, and other information needed to complete the learning activities.
- Additional resources, acronyms, and a glossary.

The format of the PW is an instructional design decision; it aligns contractual

requirements with the most appropriate presentation of content.

NHI encourages text in the PW. A workbook is more valuable as a resource if it includes enough detail to provide guidance and clarification of bulleted items on slides.

- Determine the number of slides per page by the nature of the screen shot—with the intent that the slides are clear to the participants— and the graphics and text on the page.
- Insert charts and tables directly into the PW to maintain clarity. Do not insert a duplicate PP slide containing those graphic elements.



## Workbook Format

The format of the workbook is an instructional design decision based upon the type and amount of required technical content, supporting visuals, and adult learning principles.

Discuss the preferred workbook format with the project COR before development.

At a minimum, the PW includes:

- Cover
- Table of contents
- Introduction
  - Course overview
  - Course description
  - Course goal and outcomes
  - Course agenda
- Course material
  - Content
  - Exercises (if applicable)
- Resources
  - List of abbreviations and acronyms
  - Glossary
  - List of references and source documents

## 8. Standards for End-of-Course Assessment Tools

Most NHI WCTs include end-of-course assessments in the form of a self-paced web module. The facilitator directs participants to complete the exam at the end of the training and provides instructions on how to access the exam via the online curriculum.

The end-of-course assessment and answer key source files must be delivered to NHI in accordance with delivery specifications for electronic submissions.

Assessment instruments could include objective measures, e.g., multiple choice questions or matching questions. Other acceptable testing types include performance testing (skill demonstrations) and critical thinking (case studies).

The following are some acceptable test items:

- Multiple choice
- Matching
- True/False (\*Note: Use no more than 10% true/false questions)
- Completion or “fill in the blank”
- Performance

## 9. Standards for Supplemental Materials

Supplemental materials include any additional material used by the facilitator that is introduced to participants during the web conference.

- Examples include exercises and skill practice, workshop information, problems and calculations (with solutions), an explanation of roles for group projects, case studies, video, web sites, or other supplementary information.
- Whenever possible, use alternate methods for viewing required content.
  - Use the Web share pod to view Web sites.
  - Convert documents to Flash .pdf format, and post to a Share pod.

## 10. Standards for WCT Facilitation

It is extremely important to be organized before, during and after an WCT. NHI has developed a checklist for facilitators to assist with the planning process.

You may get more details from the NHI WCT Facilitator Checklist located on NHI's website. If you are unable to locate it, contact NHI Customer Service at [NHICustomerService@dot.gov](mailto:NHICustomerService@dot.gov) to receive a copy.

## 11. Delivery Formats

Deliverables for WCT courses are electronic files. Deliver the products required by the contract as final deliverables in the following formats:

- .pdf via large file transfer (*provided print-ready as one complete document*) (*link to*

*be provided by NHI)*

- Facilitator guide
- Participant workbook
- Reference manual
- Other materials required for course delivery
- Microsoft Word document via large transfer (*may be segmented by module or lesson if files are large*)
  - Facilitator guide
  - Participant workbook
  - Reference manual
  - Other materials required for course delivery
- Copies of all copyright releases and letters granting permission for use from the authors or artist, if applicable
- Any written approvals for modifications

### **11.1 Required Details**

Format the cover page of the facilitator guide, participant workbook and reference manual to include all the information detailed in the sections below.

### **11.2 Cover Page**

- Use the NHI-provided modifiable PDF template as the cover page.
- Use the NHI-provided publication number specific to each deliverable.

### **11.3 Use of Logos and Company References**

- Do not include company logos on any deliverable to NHI.
- Do not include references to the company and or persons developing, designing, and or delivering the course in any PW, IG, RM, or visual aids.

## **12. Standards for Electronic File Submissions**

Check with NHI to determine the version of Microsoft to be used to develop printed materials as identified by the US Department of Transportation (DOT) Standard. This requirement is in place to allow NHI to edit all documents delivered by the contractor.

- Do not deliver documents in read only, presentation-only, or password-protected format.
- The use of macros and other complex formatting should not be used unless approved by the COR.

Use the requirements below to create folders for files delivered to NHI.

## **12.1 Source Files Folder**

- Facilitator Guide
- Participant Workbook
- Presentation and test materials
- Reference Manual
- Supplemental materials

## **12.2 PDF Files Folder**

- Facilitator Guide
- Participant Workbook
- Reference Manual
- Supplemental materials

## **12.3 Readme File**

- Document any shared materials.
- Include additional information on use of materials or printing requirements.

## **12.4 File Naming Convention**

Following are file naming conventions for each deliverable. Separate each item in the file name with an underscore (\_).

- Course number
- Publication Type
  - FG (Facilitator Guide)
  - PW (Participant Workbook)
  - RM (Reference Manual)
  - PP (PowerPoint Presentation)
  - EX (exam, test, assessment, evaluation instrument, answer key)
  - SM (simulation)
  - VD (video)
  - AU (audio)
  - BK (book)
  - OM (other materials)
- Publication number (if applicable)
  - Obtain from NHI (XX-XXX)

- Revision date formatted in a two-digit month and year
  - 0910 (September 2010)
  - 1001 (October 2001)
- File Description (short description of the file, if necessary)
  - ExamA
  - ExamB
- Application Extension
  - .pdf (Adobe Acrobat)
  - .doc (Microsoft Word)
  - .ppt (Microsoft PowerPoint)
  - .flv or .avi (Video file)
  - If other software has been approved, use standard application extensions

Following are two examples of file names using the convention *Course  
Number\_Type\_Pub #\_Date\_Desc\_Ext*

- 130053\_PW\_09-116\_0511\_PDF
- 141031\_EX\_0702\_TestA\_DOC (an example where no publication number will be assigned)